A newsletter of the Local Technical Assistance Program (LTAP)

Issue Number 49, Winter 1995/96

Bulletin

Working Together for Better Pavements — the NWPMA

by George Crommes, P.E.

The title of this article is part of the mission statement of the Northwest Pavement Management Association (NWPMA). Various chapters of this association have been formed including the Puget Sound Chapter.

On November 8, 1995, Joanna Pottorff was elected chair for the Puget Sound Chapter succeeding Pat Carroll of Thurston County who was elected as chairperson of the Executive Board of the association. After a very successful eighth annual pavement management conference in Olympia in October, the association members have re-emphasized the fostering and promotion of pavement management and technology sharing. Pavement management can save time, effort, and money in these times of doing more with less.

Joanna Pottorff, the new chair for the Puget Sound Chapter, works for Lewis County Public Works as a Tech III where she is responsible for their pavement management efforts. Joanna started with Lewis County in 1989 as part of a work study program at Centralia Community College. She received a full-time position with the county a few months prior to receiving her AA degree in civil engineering technology. Her pavement management efforts with Lewis County are typical of many Washington's local agencies and bear repeating here in her own words.

> "In 1992, our office re-established new mileposts on all county roads, cross culverts, signs, guardrails, and our first visual ratings for the pavement management system was entered into CRIS (County Road Information System). This was a major undertaking for the part-timers we hired to do the job. I took over the CRIS just after this was completed.
>
> In 1994, our roads were visually rated again. Once I had compiled the second set of data it was apparent that consistency and time were going to be a major factor in the Pavement Management System. That same summer we had Clark County deflection test our arterial

Pavement management can save time, effort, and money.

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T2

The Northwest Technology Transfer Center
TransAid-WSDOT

Inside

Editor's Column

Calendar year 1995 was a very busy and successful year for the T^2 Center. Many of you took advantage of our workshops and roadshows for training and you requested many technical publications. We continued to coordinate with your associations in our mutual efforts of skills enhancement and sharing of technical information and managerial concepts. This newsletter, the "Bulletin" continued as a communication device between us.

Special technical needs were met with special reports, videos, and classes. Examples include a residential traffic management guide, a guide for local agency pavement managers, an ISTEA newsletter, a transportation guide for Indian Tribal Governments, numerous brief handout materials, and a pavement rating video.

As we enter 1996, we look forward to serving and working with you in the transfer of technology. Send us your success stories of new ideas, materials, or processes that you have successfully tried so that we can share them with others.

I recently purchased a book entitled "Thoughts On Success," part of the Forbes Leadership Library. In it is a quote by Harry S. Truman that I thought enlightening and refreshing.

> ***"I found that the men and women who got to the top were those who did the jobs they had in hand ... with enthusiasm and hard work."***
>
> **Harry S. Truman**

ASR Alert

A major cause of deterioration to highway structures and concrete pavements is that caused by Alkali-Silica Reactivity (ASR). This was the topic at a recent Federal Highway Administration (FHWA) Strategic Highway Research Program (SHRP) showcase sponsored by the Oregon Department of Transportation.

Damage by ASR results in expansion and cracking of concrete. Three requirements must be satisfied for this occur: (1) reactive forms of silica or silicate in the aggregate, (2) sufficient alkali primarily from the cement, and (3) sufficient moisture in the concrete. If any one of these conditions is not present, expansion by ASR will not occur. Alkali reacts with silica to form a reaction gel product, which swells as it absorbs moisture. The presence of this gel is evidence of an alkali-silica reaction. Unfortunately, this gel is nearly imperceptible to the naked eye and ASR may go undetected for long periods of time before severe stresses lead to its identification.

While the departments of transportation in Alaska, Idaho, Oregon, and Washington have not identified major problems in their structures and pavements, distresses have been found in other structures such as dams.

A rapid field procedure has been developed to identify the presence of ASR reaction products in concrete. The detection of this product does not necessarily reflect the development or severity of distress, so more precise laboratory examination and assessment should follow. With proper source identification, testing, design, and construction, the chance that ASR will develop can be minimized. If expansive ASR is identified in existing structures, measures are available to counteract its effects. Research is continuing into ways to both prevent and mitigate the effects of ASR. Professionals responsible for the design, construction, and maintenance of concrete structures and pavement should be aware of ASR and be able to identify it before detrimental distresses develop. The following reference is recommended: *Handbook for the Identification of Alkali-Silica Reactivity in Highway Structures* by David Stark of Construction Technology Laboratories, Inc. A limited quantity of this publication, (FHWA-SA-94-037), is available at no cost from the FHWA at (703) 285-2144. Another source of information is the WSDOT Materials Lab at (360) 753-7100.

(This amended article, provided by Howe Crockett, FHWA Region 10 Quality Assurance Engineer is based on material extracted from the referenced handbook.) ●

Improving Student Pedestrian Safety

by Virginia Brix, KJS Associates

In Washington, most children get to their school in one of three ways: they ride the yellow school bus, they walk, or their parents drive them.

The safety of students walking to and from school has always been a major concern of parents, teachers, schools, public works, and law enforcement agencies. Since 1982, when the state began funding student transportation, school districts made the decision on who rides the school bus and who walks. School districts are responsible for developing walk routes for the "walkers," usually those living within a one-mile radius of their elementary school.

Developing walk routes is not only a good idea, but required by law (WAC 392-151-025), and involves preparing walk route plans, providing school walk route maps and information to parents and students, identifying "hazardous walking conditions" locations along the route (RCW 28.A160.160(4)), and collaboratively with local public works agencies to mitigate pedestrian safety deficiencies.

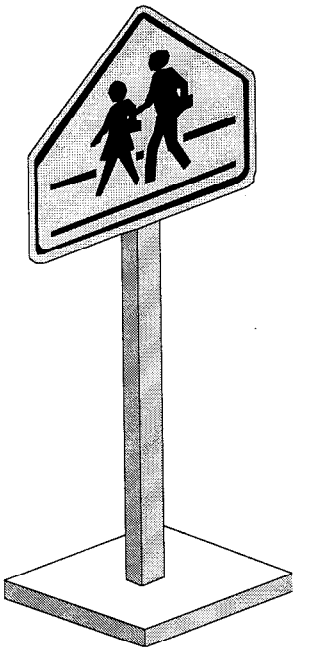
In 1995, the state renewed its emphasis of schools working with the public works agencies, to mitigate walk route deficiencies. The legislature reasoned that if "hazardous walking conditions" were to be improved by public works agencies, more students could walk to school, escalating transporting costs could be reduced, and, at the same time, walkways could be made safer for the community — 24 hours a day. However, pedestrian improvements need to be funded. Over the past decade, public works agencies have felt increasing pressure to maintain and improve their local roads with leaner budgets.

The Traffic Operations Office of the Washington State Department of Transportation (WSDOT) is leading a program to assist school districts in developing walk routes, to create a statewide inventory of proposed projects addressing walk route deficiencies, and to secure funds that would assist public works agencies with "walk route" pedestrian improvements.

In August, WSDOT sent *A Guidebook for School Pedestrian Safety*, developed by KJS Associates of Bellevue, to all school districts and public works agencies. Until now, school administrators have not had a comprehensive concise reference for preparing walk routes plans for their students nor guidelines on working with public works agencies to mitigate the deficiencies.

Under the WSDOT Student Pedestrian Safety Program, all public works agencies are eligible to develop and submit projects to be included in the Statewide Inventory of School Walk Route Improvements. Submittals are due ***February 29*** and require school districts and public work agencies to collaborate. The projects submitted by public works agencies must be on a school walk route, should increase the number of students walking to school, and require school district concurrence. Once a funding source has been located, all projects must have matching local dollars to be eligible for the grant.

Shohomish County has taken the initiative to establish a partnership with their school districts. In November, the Snohomish County Department of Public Works invited all 15 school districts, all cities, and other jurisdictions in Snohomish



County to a Student Pedestrian Safety Forum. The forum focused on the many ways the county, cities, and school districts could work together to mitigate pedestrian deficiencies and improve walk routes for area students. The county prepared maps for each of the 80 elementary schools in the area which identified existing traffic conditions. Resources also were defined to fund pedestrian improvements (Walkway Program, Block Grants, County Road Improvement Projects). KJS staff explained the process for developing walk routes, identifying deficiencies and remedial actions and reviewed the application process for WSDOT student pedestrian improvement grants.

The forum provided time for all parties to meet and begin plans for joint projects. From the contacts at that meeting, Snohomish County, the cities, and school districts have already started collaborating on pedestrian projects for the WSDOT inventory and grant.

Public works agencies are encouraged to work with their local schools and submit projects. For more information, contact Ed Lagergren at WSDOT (360) 705-7986. ●

In the News

U.S. Army Corps of Engineers Manuals Available Through ASCE

Retaining and Flood Walls

This volume provides guidance for the design and construction of retaining and flood walls. It is intended for retaining walls which will be subjected to flowing water, submergence, wave action and spray, exposure to chemically contaminated atmosphere, and/or severe climatic conditions.

Design, Construction, and Maintenance of Relief Wells

This book offers guidance and information on the design, construction, and maintenance of pressure relief wells installed for the purpose of relieving subsurface hydrostatic pressures which may develop within the pervious foundations of dams, levees, and hydraulic structures.

Strength Design for Reinforced-Concrete Hydraulic Structures

This manual provides guidance for designing reinforced-concrete hydraulic structures by the strength-design method.

Design of Pile Foundations

This is the first Army Corps of Engineers manual published by the ASCE for dissemination to the entire civil engineering profession. The manual is intended to provide examples and procedures of proven technology.

Contact ASCE 1-800-548-2723 and ask for technical publications. A discount is given to ASCE members. ●

Traffic Law Enforcement and Traffic Engineers to Meet

This biennial conference, the fourth one to date, is scheduled for February 28-29, 1996, at Cavanaugh's at the Yakima Center. The purpose of the conference is to foster improved communication between law enforcement and engineering. The program includes first hand accounts of the 1994 Chelan County firestorm and the aftermath of the Oklahoma City bombing. The new Washington State Patrol crash form will be discussed along with the new technology for accident reporting and analysis. The Internet will be explored from the engineering and enforcement prospective. A session on tort liability with a nationally known speaker is in the works. Mark your calendar and plan to attend. For more information, contact Ed Lagergren at WSDOT (360) 705-7986. ●

Work Zone Safety Program Established

The FHWA established a new program, the National Work Zone Safety Program. The purpose is to enhance "safety at highway construction, maintenance, and utility sites by improving the quality and effectiveness of traffic operations, safety appurtenances, traffic control devices, and maintenance of traffic bidding practice." Four areas are involved: (1) standardization, or updating existing work zone safety standards; (2) ensuring compliance with standards; (3) evaluation of work zone operations; and (4) the implementation of innovative technologies and procedures.

FHWA will work with state highway agencies to develop a statewide highway work zone safety program and will encourage states to include work zone safety as a part of the state's Safety Management System. ●

(Source: AASHTO Regs Report, October 25, 1995.)

NHS Designation Act of 1995 Enacted

Below are selected highlights of the NHS Designation Act of 1995 which was enacted November 28, 1995.

NHS System Designation

- Designates the National Highway System (NHS). Designation allows the release of $5.4 billion in Fiscal Year 1996 funds authorized by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.
- Total NHS mileage is 160,955 miles. The system may be modified by the Secretary of Transportation in the future. NHS connectors to major intermodal facilities will be proposed by the Secretary to Congress within 180 days.

Safety

- Repeals the National Maximum Speed Limit law. States may now set their own speed limits without penalty.
- Repeals the Federal Motorcycle Helmet Use law. States will no longer be penalized if they have not enacted laws requiring use of motorcycle helmets.
- Requires states to enact and enforce "zero-tolerance" law — laws which make it illegal for drivers under the legal drinking age of 21 to drive with a blood alcohol content of 0.02 percent or higher.
- Establishes a Commercial Motor Vehicle Safety Pilot Program which allows exemptions of vehicles and drivers of vehicles between 10,000 and 26,000 pounds from the Federal Motor Carrier Safety Regulations. Applicants must apply to the U.S. Department of Transportation (USDOT) and must meet specific safety requirements to participate.

Finance

- Provides $471 million in new funds with broad eligibility and gives flexibility in the use of "old" funds to partially mitigate the effects of Section 1003(c) of ISTEA, which caused an across-the-board cut in FY 1996 funds totaling $2.55 billion.
- Establishes a State Infrastructure Bank (SIB) Pilot Program allowing up to 10 states to participate. The states could use up to 10 percent of some categories of federal aid highway and transit funds to establish infrastructure banks. The banks may not make convention grants, but may make project loans, enhance credit, subsidize interest rates, and provide other assistance for eligible highway and transit capital projects. Other innovative finance provisions, designed to leverage investments in surface transportation, are also included in the legislation.

(Source: FHWA Internet Home Page, http://ctil.volpe.dot.gov/ohim/high.html)

New Releases Available on Transportation Management

The FHWA's Research and Special Programs Administration has a Technology Sharing Program. A free single copy of the following reports is available to support state and local officials. Refer to the report number when requesting a copy from: USDOT, Publication Division (M-45.3) Washington, D.C. 20590.

Ramp Metering Status in North America: 1995 Update, June 1994, DOT-T-95-17

An update of a September 1989 report, this document reviews the state of the practice with ramp metering in the United States and Canada. It is intended as an initial resource for those wishing to explore the feasibility of ramp metering, or use of traffic control devices to limit the number of vehicles joining the traffic flow on major freeways and arterials.

Do It Yourself Vanpool Guide, August 1994, DOT-T-95-15

This guide, originally published by Washington State Department of Transportation, describes how to operate vanpools that recover the commuting-related portion of their fixed and operating costs without making a profit. The legal material included is specific to Washington State, but the operations-related material included is generally applicable.

Operational Design Guidelines for High Occupancy Vehicle Lanes on Arterial Roadways, November 1994, DOT-T-95-14

This document, prepared by the Ontario, Canada Ministry of Transportation, summarizes relevant information and proven guidelines for planning, design, and operation of High Occupancy Vehicle (HOV) facilities. ●

Continued from page 1 — Working Together for Better Pavements

roads (300 miles). With this information, I was able to show our road superintendent that a prelevel on a particular road would not work. The road had very little structural strength and needed reconstruction. We were then able to obtain Rural Arterial Program (RAP) funds for this road project.

I spent a year researching the pavement history on our county roads. I am sure it is the same with most county agencies; you have to be a jack of all trades and you are spread pretty thin sometimes. I am presently working on entering all of the history into CRIS.

I am looking forward to getting our third set of visual rating data this summer. With three sets of data and the pavement history entered into the system, I should be able to derive and present the information in clearer and more concise form. I am hoping to put the overall picture in a more easily digestible form."

Joanna looks forward to her new role as chair for the Puget Sound Chapter of the Northwest Pavement Managers Association and to the group's continual efforts in the art and science of pavement management. ●

Answering Your Training Needs

By Stan Sanders, T^2 Training Coordinator

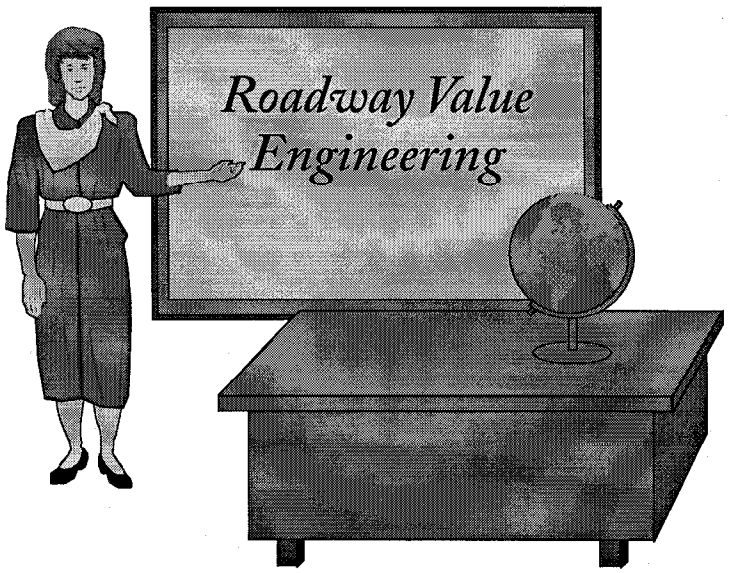
Various publications of the Northwest T^2 Center advise local agencies of training opportunities. We recognize that circumstances may prevent local personnel from sending employees to these classes. It may be that the timing or location is not ideal. Some agency budgets prevent sending employees to classes due to a shortage of funds or the employees can't be away from the office for the duration of the class.

Sound familiar? There is a solution to these and other problems which confront local agencies during this time of downsizing and reorganization. I am available to assist agencies in finding training opportunities and bringing them to the agency.

Over the past few months, several agencies have taken advantage of this T^2 service. For example, we have provided training requested by agency personnel in contract plans and specification writing, clear zone and beam guardrails, asphalt paving inspection, and contract documentation. An advantage of these special classes is that in many instances they can be tailored to fit the specific needs of the agency.

What it takes for having these and other classes presented at your location is (1) a desire to host the training, (2) a classroom facility suitable for the training being presented, and (3) enough attendees to warrant holding the class (usually 15 or more). Attendees need not all be from your agency. You can coordinate with adjacent agencies to get the required number of people. Generally the training is free to the local agency, with the instructor and handout materials provided by the T^2 Center.

Contact me, Stan Sanders, NWT^2 Training Coordinator, at (800) 973-4496 or (360) 705-7477. I will work with you to get your class when and where it is needed. ●



The National Quality Initiative (NQI)

The NQI is a cooperative effort by the entire highway industry. It began in 1992 to place emphasis on quality improvement. The NQI member organizations are:

- ❒ American Association of State Highway and Transportation Officials (AASHTO)
- ❒ Associated General Contractors of America (AGC)
- ❒ American Road and Transportation Builders Association (ARTBA)
- ❒ American Concrete Pavement Association (ACPA)
- ❒ American Consulting Engineers Council (ACEC)
- ❒ American Public Works Association (APWA)
- ❒ National Asphalt Pavement Association (NAPA)
- ❒ National Ready Mixed Concrete Association (NRMCA)
- ❒ National Stone Association (NSA)
- ❒ Federal Highway Administration (FHWA)

These organizations have pledged their continuing commitment to providing quality products, services, and information. This pledge is contained in *The National Policy on the Quality of Highways.*

Activities of the NQI Long-Range Plan included a National NQI Seminar held November 14-15, 1995 in Virginia. The first NQI Achievement Award went to the North Carolina Department of Transportation and C. C. Mangum, Inc., for the design and construction of the North Raleigh Bypass project completed in 1994. The project exemplified the ideals of quality achievement and customer satisfaction as defined in the award criteria established by the NQI Steering Committee. ●

Eisenhower Transportation Fellowship Program

By Stan Sanders

The Dwight David Eisenhower Transportation Fellowship Program offers a program to attract the nation's brightest minds to the field of transportation, to enhance the careers of transportation professionals by encouraging them to seek advanced degrees, and to retain top talent in the transportation community of the United States. The program is intended to help upgrade the total transportation community in the nation and encompasses all areas of transportation.

There are five fellowship awards offered annually. "**The Eisenhower Graduate Fellowships**" are offered to enable students to pursue Masters Degrees or Doctorates in transportation-related fields. "**The Eisenhower Grants for Research Fellowships**" are offered to acquaint undergraduate and graduate students with transportation research, development, and technology transfer activities at the U.S. Department of Transportation. "**The Eisenhower Historically Black Colleges and Universities Fellowship's,**" and "**Hispanic Serving Institutions Fellowships**" are to provide ethnic students with additional opportunities to begin careers in transportation.

"**The Eisenhower Faculty Fellowships**" are designed to provide talented faculty in transportation fields with opportunities to improve their transportation knowledge, including attendance at conferences, courses, seminars, and workshops.

Applications are now being accepted for the graduate, research, and faculty scholarships. Applications are due to the National Highway Institute by February 15, 1996. If you have any interest in any of these fellowship programs, contact Stan Sanders, NWT^2 Training Coordinator, at (800) 973-4496 or (360) 705-7477 for an application pamphlet giving detailed information about these fellowship programs and application forms. ●

Mining Gold in the Library

by Claudia Devlin

To most folks, a library is a collection of books, journals, music CDs, newspapers, videos, and other materials. However, unless you tap its resources, you will never experience the gold today's library has to offer. One such resource is access to databases on subjects from A to Z.

Just the other day, a patron came into the library and wanted to get information on GLASPHALT. The librarian chose a transportation database, "TRANSPORT." It is divided into two parts: 1988 to the present and pre-1988. By entering the word GLASPHALT into the 1988 to present database the following results occurred:

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3  GLASPHALT
Record 1 of 3 - Transport 1988-8/95
SB: TRB-TRIS
TI: 'GLASPHALT 'UTILIZATION DEPENDENT ON AVAILABILITY.
AU: Flynn-L
SO: Roads and Bridges. 1993/02. 31(2) pp 59-61
PY: 1993
AN: 627503
Record 2 of 3 - Transportation 1988-9/95
SB: IRRD-OECD
TI: GLASPHALT : ASPHALT CONCRETE SUBSTITUTE.
AU: CHICHAK-M (ALBERTA TRANSPORTATION AND UTILITIES, RESEARCH AND DEVELOPMENT)
SO: 1992/08. 3P (5 Refs.)
PY: 1992
AN: 807974
Record 3 of 3 - Transport 1988-8/95
SB: TRB-TRIS
TI: FEASIBILITY OF UTILIZING WASTE GLASS IN PAVEMENTS.
AU: Larsen-DA
CA: Connecticut Department of Transportation, 24 Wolcott Hill Road, P.O. Drawer A, Wethersfield, CT, 06109, USA
SO: 1989/06. pp27 (2 Phot., 2 Tab., 13 Ref., 1 App.)
PY: 1989
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The above citations can also be printed with abstracts of the materials for example:

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3  GLASPHALT
Record 1 of 3 - Transport 1988-8/95
TI: 'GLASPHALT 'UTILIZATION DEPENDENT ON AVAILABILITY.
AB: 'Glasphalt' is produced when waste glass is used as a substitute for a portion of aggregate or sand in hot-mix asphalt concrete. The benefits of glasphalt use include the reduction of the amount of waste glass that is landfilled, and its aesthetic advantages. This article discusses important issues such as cost effectiveness, performance, availability, effective mix design, recyclability, and health precautions. The successful use of asphalt in Baltimore, New York and Los Angeles is described. Factors that affect costs, including availability of product, are discussed, as well as its durability, and performance relating to stripping, skid resistance, degradation, rutting, and flat tires.
Record 2 of 3 - Transport 1988-8/95
TI: GLASPHALT : ASPHALT CONCRETE SUBSTITUTE
AB: The term Glasphalt refers to an asphalt cement pavement mix in which a significant portion of the aggregate is composed of crushed waste glass. The concept was developed to address the problem of large volumes of waste glass filling garbage disposal sites. Through years of testing, starting in 1969, Glasphalt has been proven to be technologically feasible, however there are some significant reasons why it is not in wide spread use. Its first installation was in Toledo, Ohio, and many trial sections have been placed since. Each of these installations raised the same concern : economic feasibility, surface durability and availability of sufficient volumes of waste material to be useful.
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When the pre-1988 database was searched, nine citations were found.

Now the patron can review the references and decide which items he/she would like to see in full text. If the items are owned by the library, they are pulled for the patron. Otherwise, the item/s can be obtained and photocopied or borrowed from another library. By using the on-line database to search the topic, a world of information can be accessed which cannot be found in the library catalog. ●

Claudia Devlin is the Senior Librarian for WSDOT.

Setting Traffic Cones Safely

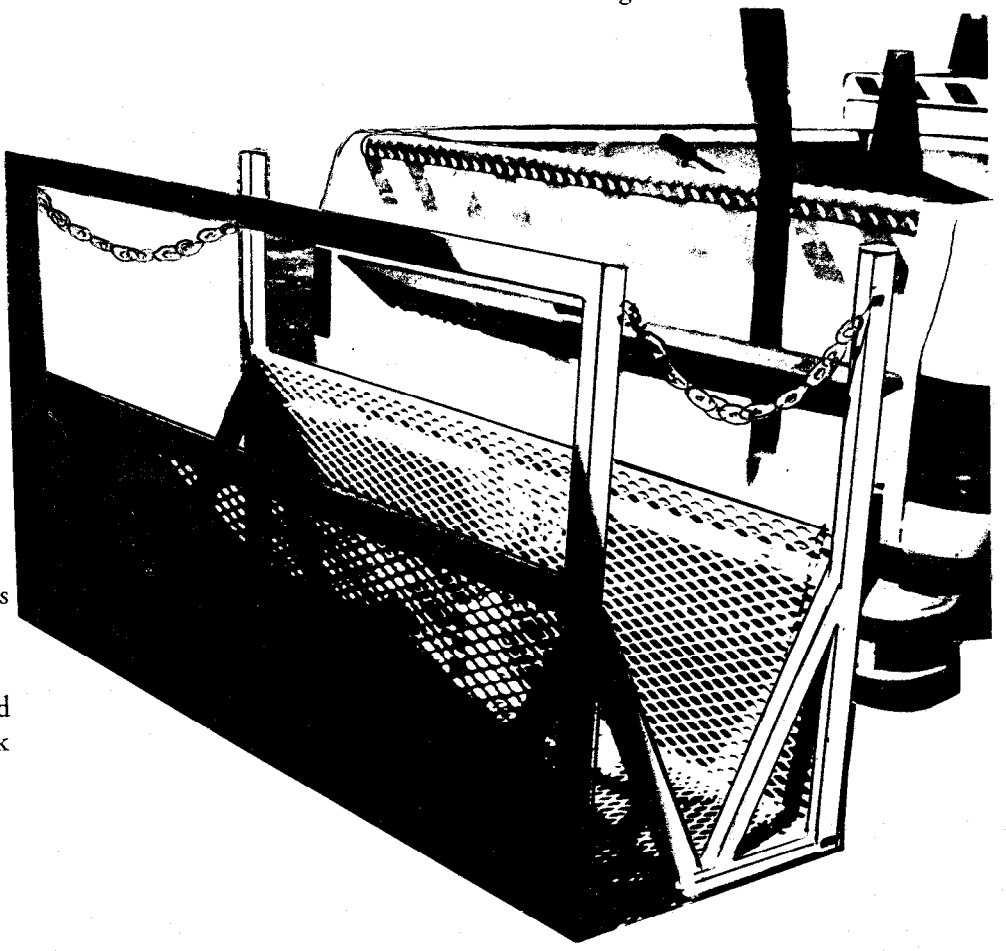
by Rex Swartz

In late 1994, WSDOT received and appealed a citation by Labor and Industries (L&I) for the practice of setting cones while an employee is seated on the tailgate of a pickup. L&I and WSDOT entered into a settlement agreement formalized in a Board of Industrial Insurance Appeals Order on May 16, 1995. WSDOT agreed to: (1) discontinue the practice of setting cones while seated on the tailgate of a pickup truck, (2) have the citation affirmed, and (3) pay a reduced fine. L&I agreed to extend the abatement date for six months from the date of the Board order while the two agencies would meet and devise an acceptable method for cone-setting.

It is anticipated that L&I may issue citations against others who have employees setting traffic control cones from the tailgate of a pickup. Below is what the Washington State Department of Transportation (WSDOT) considers to be acceptable practice of cone-setting for their employees. It is presented for information only.

1. WSDOT Field Operations prohibits riding on the tailgate of a pickup for any purpose.
2. Back-mounted cone cages (pickups and one-ton trucks) will be the accepted standard method allowed for use when setting cones and signs at work sites.
3. Truck-mounted front platforms, are an acceptable standard method for setting cones and signs at work sites on multi-lane highways.
4. Single purpose signing vehicles, such as the "road warrior" are an acceptable standard method for setting cones and signs at work sites on multi-lanes highways.
5. Another acceptable method is working out of the cab of a pickup with the supply of cones and signs in the back of the pickup. The worker rides in the cab to the point of installation, stops and gets out, sets the necessary cones and/or signs, gets back in the pickup and proceeds to the next spot.
6. A truck mounted attenuator (TMA) or shadow vehicle may be used, if traffic volumes, or speed or the conditions suggest the need for additional safety for any of the acceptable standard methods. This decision shall be made by the local traffic control supervisor. All controls will be based upon the WSDOT Workzone Traffic Control Guidelines (dated July 22, 1994); the *Manual of Uniform Traffic Control Devices* (MUTCD), part VI and local Traffic Control plans. ●

Mr. Swartz is WSDOT's Safety Manager.



Free Publications

For Washington recipients only.

Name

Agency

Address

City and Zip

Phone

Check those items you would like to order.

___ LTAP News, 1993.
CD ROM listing of major articles from T^2 Center newsletters from across the country. Must have Microsoft Windows, a CD ROM, and color monitor.

___ Unsurfaced Road Maintenance Management, CRREL
After rating unsurfaced roads, the next steps are covered in this special report by the Corps of Engineers.

___ Highway Utility Guide, FHWA
Provides the state-of-the-knowledge on the better practices being employed and addresses the issues when highway and utility facilities share a common right of way.

___ Moving with Metric — Metricube, FHWA (1994)
Foldable cube shows volume, temperature, mass weight, length, and other interesting facts on metric conversion.

___ Scrap Tire Utilization Technologies, NAPA
This booklet provides a succinct overview of various uses for scrap tires, barriers to implementation, and sample policy statements on solid waste management of waste tires used in Oregon.

___ State-of-the-Art Survey of Flexible Pavement Crack Sealing Procedures in the United States, CRREL (1992)
Brief 20-page guide summarizes current methods and materials used by contractors and state departments of transportation for crack sealing on flexible pavements. Advantages and disadvantages are stated.

___ Maintenance of Aggregate and Earth Roads, NWT^2 Center (1994 reprint)
The fundamentals.

___ Asphalt Seal Coats, NWT^2 Center (1994 reprint)
The fundamentals.

___ Concrete Pavement Repair Manuals of Practice, SHRP (1994)
Contains two manuals for use of highway maintenance people. Covered are the repair of joint seals and the state-of-the-art of rapid repair of partial depth spalls.

___ Guide to Safety Features for Local Roads and Streets, FHWA (1992)
Booklet deals with the construction and maintenance practices that will lead to increased safety.

___ Planning, Design, and Maintenance of Pedestrian Facilities, FHWA (1989)
A textbook on the subject.

___ Development of a Procedure to Rate the Application of Pavement Maintenance Treatment, SHRP (1992)
A partial printing of a completed SHRP product. This report uses decision trees and summarizes national practices.

___ Pavement Management Implementation in Washington's Counties and Selected Cities — A Progress Report
Documents the results of a survey of Washington counties and cities by Grays Harbor County staff regarding pavement management systems, data collection, and use of this information.

___ Snow Fence Guide, SHRP 1991
Summarizes the results of research conducted by SHRP, as well as other research conducted over the last two decades.

___ Family Emergency Preparedness Plan, American Red Cross, et. al.
Step-by-step guide to disaster planning.

Handbooks, Workbooks, and Handouts From T^2 Center Workshops

___ Handbook for Walkable Communities, by Dan Burden and Michael Wallwork
Textbook from the class "Planning and Design of Pedestrian Facilities."

___ Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas (research report), by Burden and Wallwork.
Textbook from the class.

___ Traffic Calming, A Guide to Street Sharing, by Michael Wallwork
15-page handout from the pedestrian class.

___ Part VI Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations. Includes handouts: (1) Quality Standards for Work Zone Traffic Control Devices, (2) Flagging Handbook, and (3) Work Zone Safety: Guidelines for Municipalities, Utility, and Contractors.
Textbook from the class "Work Zone Safety for Maintenance Operations on Rural Highways."

Orders may be faxed, mailed, or phoned in to Laurel Gray
Phone: (360) 705-7386, Fax: (360) 705-6822
Mailing Address: NWT^2 Center, WSDOT/TransAid, PO Box 47390,
Olympia, WA 98504-7390

8th International Conference on Asphalt Pavements — 1997

Sponsor: International Society for Asphalt Pavements

Research and practice concerning the latest developments in flexible pavement design, construction, and performance. Topics may include pavement analysis, design criteria, material properties, soil characterization, pavement loading and dynamic effects, quality control in construction, recycling, case studies of innovative design and construction, effects of traffic and environment, and analysis of failures. Invitations to prepare papers will be issued in February 1996.

Contact: 8th International Conference on Asphalt Pavements, University of Washington Engineering Professional Programs, 3201 Fremont Avenue North, Seattle, Washington 98103.

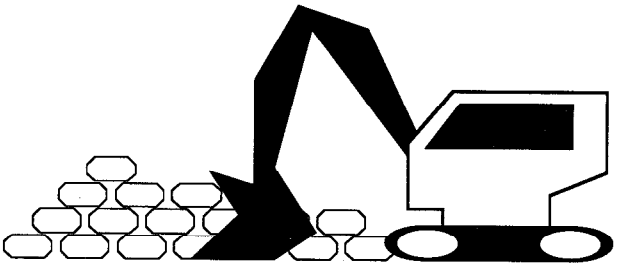
This will be held August 10-14, 1997 in Seattle. ●

Conference Held on Infrastructure Banks

On November 29 in Denver, representatives from the U.S. Department of Transportation, state transportation agencies, the National Conference of State Legislators, consultants, and investment bankers attended a one-day seminar on the future of infrastructure banks as a means to fund transportation.

The focus of the conference was to educate and exchange ideas on how the nation's increasing transportation needs can be met through the implementation of infrastructure banks at the state or regional levels. Section 350 of the National Highway System legislation signed by President Clinton recently contains state infrastructure bank (SIB) language, allowing 10 states to deposit up to 10 percent of state apportionments for two years into SIBs. ●

(Source: AASHTO Journal, December 8, 1995.)



Plan to Attend the 47th Annual Road Builder's Clinic

March 11-13, 1996, Coeur d'Alene, Idaho

A broad agenda of activities has been developed for this annual event. Announcements and registration materials are sent by Conferences and Institutes, Washington State University. The planning committee including your T^2 Center Director have developed a program of timely pertinent issues and subjects.

Keynote will be Bill Ballester speaking on "Winning Teams and Changing Times." Mr. Ballester is a two-time NCAA Coach of the year and nationally recognized motivational consultant. He presently works with the USDOT on the National Quality Initiative. Some of the proposed sessions are:

- Funding/ISTEA/Government Agency Changes
- Hot Inplace Asphalt Paving
- Quality Initiative/Quality Control
- Air Quality in Spokane/ Erosion Control in Coeur d'Alene
- Nonmotorized Vehicles
- GIS and New Technology Tools
- Internet Issues

Contact WSU, Conferences and Institutes at 1-800-942-4978 or (509) 335-3530.

Opportunities to Enhance Your Skills

For more information or training needs not listed in this bulletin, contact Stan Sanders, T² Center Training Coordinator, at (800) 973-4496 or (360) 705-7477

Classes and Workshops

Northwest Technology Transfer Center
(360) 705-7386

Call Laurel Gray in the T² Center to register. If the class is full or not scheduled at this time, we will put your name on a wait list for future classes.

"Road Shows" — Begins March 15, 1996.

Safety Inspection of In-Service Bridges. February 12-16 Tacoma, and February 26-March 1, Tumwater. Workshop, lecture, field exercises. (Calculator with exponential function capabilities is required.) Participants must attend both weeks. No fee. 10 days.

WSDOT, Staff Development Training via the NWT² Center
1-800-973-4496, (360) 705-7477

Call Stan Sanders in the T² Center to register or if you are interested in a class not listed, we will put you on a wait list for future offerings.

Miscellaneous Documentation (ACY). February 7, Wenatchee; February 13, Vancouver; April 9, Tacoma; April 10, Seattle. No fee. 1 day.

Electrical-Illumination and Signals (API). March 13-14, Yakima; April 17-18, Spokane. No fee. 2 days.

Bridge Structures Inspection (ACM). February 6-8, Tacoma; March 19-21, Wenatchee. No fee. 3 days.

Asphalt Paving Inspection (ACB). April 11, Tacoma; February 28, Seattle. Workshop. No fee. 1 day.

Excavation and Embankments Inspection (AC3). February 15, Spokane; February 27, Tacoma; February 13, Wenatchee. Workshop, demonstration. No fee. 1 day.

PCC Field Testing Procedures (ABT). February 8, Wenatchee; February 13, March 13, Spokane; February 14, Vancouver; March 5, March 6, Yakima; March 7, April 25, Tumwater. No fee. 1 day.

Aggregate Production Inspection (ACA). February 8, March 26, Spokane; February 22, Wenatchee; March 26, Tacoma. Workshop, demonstrations. No fee. 4 hours.

Worksite Traffic Supervisors Seminar (A42). January 24-26, Seattle; January 30-February 1, Spokane; March 12-14, Ellensburg; March 18-20, Olympia. Workshop, discussion. Successful completion of this course will provide certification. $225, plus $75 for certificate. 3 days.

Asphalt Concrete Pavement Testing Procedures (BG9). March 6-7, Spokane; March 27-28, Tumwater; April 9-10, Vancouver. Workshop. Prerequisites: Nuclear Gauge Operator Certification, Asphalt Plant Inspection course (AYP); bring calculator and dress to test asphalt. No fee. 2 days.

Traffic Control, Flagging (AFZ). January 23, am, Spokane; February 27, am, Spokane. Lecture, discussion. Upon completion and passing examination a certificate will be issued. No fee. 4 hours.

Design Procedures (BMF). February 21-22, Kent. Discussion, workshop. $100. 2 days.

Drainage Inspection (ACF). February 28, Tacoma; January 23, February 6, Spokane; February 14, Wenatchee; February 15, Yakima. Workshop. No fee. 1 day.

Nuclear Gauge, Operator Qualification (ALG). February 6, Vancouver; March 18, Wenatchee; March 27, Seattle; April 2, Spokane; April 2, Tacoma. Workshop. Certification given those receiving a passing score on a written examination and hands-on proficiency test. No fee. 1 day.

Nuclear Gauge, Embankment/ Surfacing/ Pavement Applications (ANQ). February 7, Vancouver; March 28, Seattle; April 3, Spokane; April 9, Wenatchee. Workshop, discussion, participation. No fee. 1 day.

Nuclear Gauge, Overview for Supervisors (ANE). April 4, Tacoma; April 10, Wenatchee; April 24, Seattle. Workshop, discussion, participation. No fee. 4 hours.

Asphalt Paving Inspection (ACB). February 28, Seattle; April 11, Tacoma;. Workshop. No fee. 1 day.

Critical Path Scheduling, Basics (BKX), Design Office Applications (BKZ), Field Office Applications (BKY). January 24-26, Olympia; February 7-9, Seattle; March 12-14, Vancouver. **First day**, the Basics of CPM. **Second day**, Design Office Applications. **Third day**, Field Office Applications. Lecture, discussion, practical exercises. $150. Three 1-day classes.

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Contract Plans, Specifications, and Estimate Preparation, Transmittal and Review (PS&E) (A4J), and Contract Special Provision Writing (BGN). More sessions are planned for the following dates: February 12-13, Wenatchee; February 14-15, Yakima; February 21-22, Vancouver; March 19-20, Everett. The following are tentative dates: February 27-28, Seattle; March 5-6, Olympia; March 12-13, Spokane. More sessions will be added. A4J is a two-day class that covers both classes, BGN is the Contract Special Provision Writing portion only. Workshop, lecture. No fee except for books. *Plans Preparation Manual* $35, 1994 *Standard Specifications* $8. If not in your public works office, these books may be purchased from WSDOT.

Temporary Erosion and Sediment Control. (BMC & BMB). February 13 or 14, Vancouver; March 12 or 13, March 14 (second day only), Seattle; March 19 or 20, Yakima. **First day:** plan development. **Second day:** site implementation. Attendance should be one day only according to your specialty. Workshop, lecture. 1-day classes.

University of Washington (PEPL)
(206) 543-5539, Fax (206) 543-2352

Recent Developments in Construction Site Safety: Impacts on Owners, Contractors, Construction Managers, and Design Professionals. January 25, University of Washington. Lecture, discussion. $125. 1 day.

Use of Constructed Wetlands for Improving Stormwater Quality. February 20-21, University of Washington. Lecture, discussion, class exercises and field trip. $315, $345 after 2/26. 2 days.

Design/Build, GC/CM, and Privatization of Public Works. February 28-29, University of Washington. Lecture, discussion. $315, $345 after 2/14, or $180 each day or $200 after 2/14. 2 days.

Geology, Hydrology and Hydraulics of Streams. March 13-14, University of Washington. Lecture, discussion. $315, $345 after 2/28. 2 days.

Achieving Real Success as a Project Manager. March 20-21, University of Washington. Lecture, discussion. $315, $345 after 3/6. 2 days.

University of Washington, College of Engineering
Susan G. Stone, (206) 543-5539, Fax (206) 543-2352

Vehicle Replacement Strategies and Fleet Maintenance Management. March 22-23, University of Washington Campus, Seattle. Lecture, practical applications, problem solving and case study workshops. $265 each day, $475 for both. Two 1-day classes.

Drilling and Blasting Techniques. January 22-26, University of Washington Campus. Lecture, practical applications and problem solving. Special problems and specific projects provided by audience will be discussed and suggestions offered. $950. 5 days.

Engineer-In-Training/E.I.T. Fundamentals Course. February 26-April 1. University of Washington Campus, Seattle. Lecture, practical applications and problem solving. $295. Monday and Wednesday nights 6:30 to 9:00 p.m. 11 sessions.

Civil Engineering Refresher Course. March 5, April 9, 1996, University of Washington Campus, Seattle. Lecture, practical applications and problem solving. $325. Tuesday and Thursday nights 7:00-9:30 p.m. 11 sessions.

TRANSPEED (Transportation Partnership in Engineering Education Development)
(206) 543-5539

Hydrology and Basic Roadway Drainage Design. February 5-7, Vancouver. Lecture, discussions and practical exercises. $160, $350 nonpublic agency personnel. 3 days.

Uniform Traffic Control Devices. February 22-23, Seattle. Lecture, discussions and practical exercises. $120, $300 nonpublic agency personnel. 2 days.

Advanced Pavement Design. April 24-26, Seattle. Lecture, discussions and practical exercises. $180, $350 nonpublic agency personnel. 3 days.

Inspection of Existing Culverts. February 1-2, Richland; February 8-9, Vancouver. Workshop, lecture demonstration. $100, $225 nonpublic agency personnel. 1.5 days.

GIS Applications in Transportation. March 13-15, Seattle. Lecture, demonstration, hands-on exercises. $160, $350 nonpublic agency personnel. 3 days.

Construction Inspection of Public Works Projects. January 29-30, Seattle. Lecture, discussion. $120, $300 nonpublic agency personnel. 2 days.

Public Works Construction Project Management. February 15-16, Seattle. Lecture, discussion. $120, $300 nonpublic agency personnel. 2 days.

Legal Liability: Design, Construction, Traffic Operations, and Maintenance. January 18-19, Seattle. Lecture, practical case studies. $150, $300 nonpublic agency personnel. 2 days.

Roadway Value Engineering. January 24-26, Lacey. Workshop, with real project exercises and problems. $180, $350 for nonlocal agency personnel. 3 days.

Basic Highway Capacity Analysis for Engineers and Planners. March 25-27, Seattle. Workshop and exercise for hands-on application of example problems. $180, $350 nonpublic agency personnel. 3 days.

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Department of Labor and Industries Consultation and Education Program
(360) 902-4850

The following is a listing of free L&I classes scheduled through June 1996. Call L&I for a complete list and to schedule participation.

Bloodborne Pathogens. February 6, Spokane; January 16, Bellingham; February 15, March 12, April 25, Tukwila; March 13, Tumwater; February 28, April 24, Vancouver; April 17, Everett. Workshop, lecture. No fee. 3 hours.

Hazardous Waste Operations and Emergency Response. February 7, April 17, Vancouver; March 20, Tumwater. Lecture. 1 day.

Accident Investigation. April 4, Tacoma; February 13, March 12, April 11, Tukwila; January 16, April 18, Spokane; January 16, March 25, Wenatchee; January 24, Vancouver; January 24, March 27, Mount Vernon; February 6, Tumwater; February 7, April 3, Everett; February 12, Walla Walla; February 27, Bellevue; March 5, Kennewick; March 7, May 14, Yakima; March 13, June 26, Bellingham; March 28, Bremerton; April 9, Clarkston; April 18, Port Angeles; April 24, Longview. Workshop, lecture. 3 hours.

Accident Prevention Programs. February 27, March 26, April 30, Port Angeles; February 6, March 5, April 2, Tacoma; February 13, March 13, Spokane; January 25, February 28, March 14, March 26, April 11, Tukwila; March 21, Kennewick; January 24, Bellingham; January 25, March 20, Vancouver; February 8, April 18, Everett; March 7, April 18, Tumwater; March 14, Mount Vernon. Workshop, lecture. 1 day.

Confined Space. February 14, March 27, April 9, Tukwila; March 6, Spokane; March 6, April 2, Vancouver; March 13, Aberdeen; March 20, April 24, Tumwater; March 26, Tacoma. Lecture, slides, and video. 3 hours.

Fall Protection. February 6, April 4, Tumwater; February 13, March 12, Tacoma; February 13, March 28, April 10, Tukwila; Wenatchee; January 22, March 20, Kennewick; January 24, Ephrata; February 22, April 24, Everett; February 22, April 25, Vancouver; February 28, April 24, Yakima; April 9, Bremerton; March 21, Spokane. Workshop, lecture. 4 hours.

Excavation and Trenching. April 11, Vancouver; March 7, Spokane; January 22, March 20, Kennewick; January 23, February 29, March 13, April 23, Tukwila; February 8, April 2, Tumwater; February 15, Okanogan; February 20, March 19, April 16, Tacoma; February 22, Wenatchee; February 28, April 24, Yakima; March 7, Mount Vernon; March 14, Moses Lake; March 22, Ephrata; April 25, Everett. Workshop, lecture. 4 hours.

Hazard Communication. January 24, February 15, March 12, April 25, Tukwila; January 30, Bellingham; February 8, Spokane; February 21, April 10, Tumwater; February 27, Tacoma; February 29, April 16, Everett; March 5, Mount Vernon; March 27, May 1, Vancouver. Lecture. 3 hours.

Evergreen Safety Council
(800) 521-0778, (206) 382-0778, Fax (206) 382-0878

Flagger Instructor Certification Training Program. January 16-17, Evergreen Safety Center, Seattle; January 29-30, Spokane County Training Center, Spokane. Lecture. Washington State Certified Instructor Card and Flagger Card issued at completion of the course. $445, $485 for nonmembers. 2 days.

Conferences and Meetings

Traffic Expo '96 and the 26th Annual ATSSA Convention. January 27-29, Convention Center, San Diego, CA, 3 days. American Traffic Safety Services Association. (540) 898-5400.

National Association of County Engineers (NACE), 1996 Annual Meeting and Management and Technical Conference. February 3-9, 1996, Westin Hotel, Seattle. 7 days. NACE, (360) 753-5989, Fax (360) 586-0386.

27th Annual International Erosion Control Association (IECA) Conference and Trade Exposition. February 27-March 1, Seattle. 4 days. Erosion Control Technology: Bringing it Home. IECA, Ann, (800) 455-4322, Fax (970) 879-8563.

The 1996 Traffic Law Enforcement and Traffic Engineering Conference. February 28-29, Cavanaugh's, Yakima. $50, $40 ea. for 2 from each discipline. 2 days. WSDOT, WSTSC, NWT^2 Center, (360) 405-7386, Fax (360) 705-6822.

47th Annual Roadbuilders' Clinic. March 11-13, Coeur d'Alene, ID. $185. 3 days. Washington State University (WSU), (800) 942-4978.

CONEXPO-CON/AGG '96. March 20-24, Los Vegas, NE. $375, On site fee $475. 5 days. National Association of County Engineers, (800) 366-1364, Fax (800) 676-8004.

Washington State Association of Counties (WSAC) Eastern District Meeting. April 4-5, Pasco, 2 days. WSAC, (360) 753-1886, Fax (360) 753-2742.

Washington State Association of Counties (WSAC) Western District Meeting. April 18-19, Alderbrook Inn, Hood Canal, 2 days. WSAC, (360) 753-1886, Fax (360) 753-2742.

Automated Mapping/Facilities Management (AM/FM) International Conference XIX. March 24-27, Seattle, 4 days. Thriving in an Age of Competition. AM/FM International, (303) 337-0513, Fax (303) 337-1001.

A newsletter of the Local Technical Assistance Program (LTAP)

Issue Number 49, Winter 1995/96

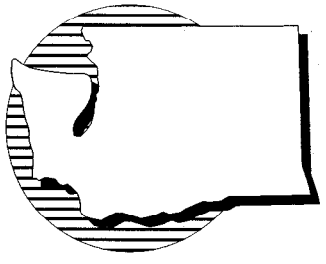
Bulletin

The Technology Transfer Center (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration (FHWA) and individual state departments of transportation. Its purpose is to translate into understandable terms the latest state-of-the-art technologies in the areas of roads, bridges, and public transportation to local highway and transportation personnel.

Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of WSDOT or FHWA. All references to proprietary items in this publication are not endorsements of any company or product.

Washington State Department of Transportation
TransAid Service Center

U. S. Department of Transportation
Federal Highway Administration



Northwest Technology Transfer Center
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Olympia, WA 98504-7390

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